

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

**STINGRAY IP SOLUTIONS, LLC,**

**Plaintiff,**

**V.**

**SIGNIFY N.V.,**

**Defendant.**

[illegible]

## JURY TRIAL DEMANDED

**CIVIL ACTION NO. 2:21-cv-44**

**PLAINTIFF'S ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT**

Plaintiff Stingray IP Solutions, LLC (“Stingray” or “Plaintiff”) files this Complaint against Defendant Signify N.V. (“Signify” or “Defendant”) for infringement of U.S. Patent No. 7,082,117 (the “117 patent”), U.S. Patent No. 7,224,678 (the “678 patent”), U.S. Patent No. 7,440,572 (the “572 patent”), and U.S. Patent No. 7,616,961 (the “961 patent”).

## THE PARTIES

1. Stingray IP Solutions, LLC is a Texas limited liability company, located at 6136 Frisco Sq. Blvd., Suite 400, Frisco, TX 75034.

2. On information and belief, Defendant Signify N.V. is a multinational corporation organized under the laws of the Netherlands, with its principal place of business located at High Tech Campus 48, 5656 AE Eindhoven, The Netherlands. Signify may be served with process at its principal place of business. Signify was established as “Philips Lighting” in 2016 after spinning off from Koninklijke Philips N.V., then changed its name to Signify N.V. in 2018.

3. On information and belief, Signify maintains a corporate presence in the United States via at least its wholly-owned U.S.-based subsidiary Signify North America Corporation (“Signify NA”). *See Annual Report 2019*, SIGNIFY, at 104. Signify NA is organized under the laws of the state of Delaware, with its principal place of business located at 200 Franklin Square Drive, Somerset, New Jersey 08873. Signify may also be served with process through Signify NA via Signify NA’s registered agent for service of process, Corporation Service Company, at 251 Little Falls Dr., Wilmington, Delaware 19808.

4. “Signify is the world leader in lighting.” *Annual Report 2019*, SIGNIFY, at 2, <https://www.signify.com/static/2019/signify-annual-report-2019.pdf>. Signify “operates in many countries via its subsidiaries and affiliated companies as well as via a limited number of branch offices.” *Id.* at 54. One such subsidiary is Signify NA. *Id.* at 104. Signify has seven manufacturing sites in the United States. *Id.* at 29. In 2019, Signify’s sales in the United States totaled over 1.3 billion euros and it had nearly 1.8 billion euros’ worth of assets in the United States. *Id.* at 98.

5. In 2019, Signify acquired full ownership of WiZ Connected Lighting Company Ltd. (“WiZ”) for its “Wi-Fi-based connected lighting” products. *Annual Report 2019*, SIGNIFY, at 7, *supra*. The acquisition “enables Signify to extend its leadership by stepping into the Wi-Fi-based smart lighting market.” *Id.* at 25. WiZ is a “lighting software solutions company based in Hong Kong” that is “deployed in 40 countries across the Americas, Europe, the Middle East and Asia Pacific.” *WiZ – About*, WIZ CONNECTED, <https://www.wizconnected.com/en-MY/about-wiz/> (last visited January 29, 2021). Signify made the acquisition in order to “address a larger customer base in the growing market of Wi-Fi-based lighting.” *Id.* WiZ provides “an open IoT [Internet-of-Things] platform” with an “easy-to-use, scalable solution” that is “accessible to all lighting and electrical vendors.” *Id.* In 2020, Signify announced an expansion of WiZ product availability in

the United States, increasing the variety of bulbs, downlights, lightstrips, and accessories available to U.S. customers. *See Signify US expands WiZ Connected Ecosystem*, SIGNIFY, <https://www.signify.com/en-us/our-company/news/press-releases/2020/20200827-wiz-launches-a-brand-new-generation-of-products> (August 27, 2020). Recently, WiZ developed ROBUST, a “new Wi-Fi + Bluetooth mesh architecture” that is being rolled out on its products as of the first quarter of 2021 and will also be implemented on other existing WiZ products. *WiZ – Innovation*, WiZ CONNECTED, <https://www.wizconnected.com/en-MY/innovation/> (last visited January 29, 2021). WiZ products connect to users’ Wi-Fi networks and are controlled by the WiZ mobile application, which is available on iOS or Android and can integrate with Amazon Alexa, Google Home, or Siri. *Signify US expands WiZ Connected Ecosystem*, SIGNIFY, *supra*.

6. Through offers to sell, sales, imports, distributions, and other related agreements with distributors and customers operating in and maintaining a significant business presence in the U.S. and/or its U.S. subsidiaries, including via Signify NA and WiZ, Signify does business in the U.S., the state of Texas, and in the Eastern District of Texas. Signify may be served with process via its agents in the U.S., including via Signify NA, and/or at its principal place of business at High Tech Campus 48, 5656 AE Eindhoven, The Netherlands.

### **JURISDICTION AND VENUE**

7. This action arises under the patent laws of the United States, namely 35 U.S.C. §§ 271, 281, and 284-285, among others.

8. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

9. On information and belief, Signify is subject to this Court’s specific and general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, due at least to

its substantial business in this State, including: (A) at least part of its infringing activities alleged herein which purposefully avail the Defendant of the privilege of conducting those activities in this state and this judicial district and, thus, submits itself to the jurisdiction of this court; and (B) regularly doing or soliciting business, engaging in other persistent conduct targeting residents of Texas, and/or deriving substantial revenue from infringing goods offered for sale, sold, and imported and services provided to and targeting Texas residents vicariously through and/or in concert with its alter egos, intermediaries, agents, distributors, importers, customers, subsidiaries, and/or consumers. Such a presence furthers the development, design, manufacture, importation, distribution, and sale of Signify's infringing electronic devices in Texas. For example, Signify's wholly-owned, U.S.-based subsidiary Signify NA, which manages its North America operations and is based in the United States, has offices in Texas. *See Locations*, SIGNIFY, <https://www.education.signify.com/momentum/locations.php> (last visited January 30, 2021) (listing a Signify location at 10911 Petal St., Dallas, TX 75238). Through direction and control of its subsidiary, Signify has committed acts of direct and/or indirect patent infringement within Texas, and elsewhere in the United States, giving rise to this action and/or has established minimum contacts with Texas such that personal jurisdiction over Signify would not offend traditional notions of fair play and substantial justice.

10. Upon information and belief, Signify controls or otherwise directs and authorizes all activities of its subsidiaries, including, but not limited to Signify NA, which, has business operations in Texas. Directly and via at least these subsidiaries and via intermediaries, such as distributors and customers, Signify has placed and continues to place infringing wireless lighting devices into the U.S. stream of commerce. Signify has placed such products into the stream of commerce with the knowledge and understanding that such products are, will be, and continue to

be sold, offered for sale, and/or imported into this judicial district and the State of Texas. *See Litecubes, LLC v. Northern Light Products, Inc.*, 523 F.3d 1353, 1369-70 (Fed. Cir. 2008) (“[T]he sale [for purposes of § 271] occurred at the location of the buyer.”); *see also Semcon IP Inc. v. Kyocera Corporation*, No. 2:18-cv-00197-JRG, 2019 WL 1979930, at \*3 (E.D. Tex. May 3, 2019) (denying accused infringer’s motion to dismiss because plaintiff sufficiently plead that purchases of infringing products outside of the United States for importation into and sales to end users in the U.S. may constitute an offer to sell under § 271(a)).

11. Signify utilizes established distribution channels to distribute, market, offer for sale, sell, service, and warrant infringing products directly to consumers, including offering such products for sale via its own website. *See, e.g., Choose a bulb – Smart Lighting*, PHILIPS, [https://www.usa.lighting.philips.com/consumer/choose-a-bulb/products#filters=SMARTLIGHTING\\_BULB\\_SU&sliders=&support=&price=&priceBoxes=&page=&layout=12.subcategory.p-grid-icon](https://www.usa.lighting.philips.com/consumer/choose-a-bulb/products#filters=SMARTLIGHTING_BULB_SU&sliders=&support=&price=&priceBoxes=&page=&layout=12.subcategory.p-grid-icon). Moreover, Signify utilizes its subsidiaries and intermediaries, such as Signify NA and WiZ, to design, develop, import, distribute, and service infringing products, such as Philips and WiZ Wi-Fi connected lighting devices and Philips Hue products. Such Signify products have been sold in retail stores, both brick and mortar and online, within this judicial district and in Texas. *See, e.g., Where to Buy*, PHILIPS, <https://www.usa.lighting.philips.com/consumer/where-to-buy> (providing links to purchase Philips lighting products online or at Home Depot or Walmart stores, which each have multiple locations in this judicial district and in Texas).

12. Upon information and belief, Signify purposefully places infringing wireless lighting devices in established distribution channels in the stream of commerce by contracting with national retailers who sell Signify’s products in the U.S., including in Texas and this judicial district.

Signify contracts with these companies with the knowledge and expectation that Signify's wireless lighting devices will be imported, distributed, advertised, offered for sale, and sold in the U.S. market. For example, at least Home Depot, Walmart, and Amazon.com offer for sale and sell Signify wireless lighting devices, in and specifically for the U.S. market, via their own websites or retail stores located in and selling their products to consumers in Texas and this judicial district. *See, e.g., White and Color Ambiance Dimmable LED Light Strip Plus Smart Wireless Light Base Kit (80") by Philips Hue*, HOME DEPOT, <https://www.homedepot.com/p/Philips-Hue-White-and-Color-Ambiance-Dimmable-LED-Light-Strip-Plus-Smart-Wireless-Light-Base-Kit-80-555334/313025879> (last visited January 29, 2021) (showing Signify's Philips Hue product for sale and in stock at a Home Depot location in Frisco, Texas in this judicial district). Signify also provides multiple types of application software for download and use in conjunction with and as part of its wireless lighting devices: the "Philips Hue App" is used in conjunction with Philips Hue products and the "WiZ App" is used in conjunction with WiZ products as well as Philips Smart Lighting products. Both the Philips Hue App and the WiZ App are available via digital distribution platforms by Apple Inc. and Google. *See, e.g., Philips Hue*, GOOGLE PLAY, [https://play.google.com/store/apps/details?id=com.philips.lighting.hue2&hl=en\\_US&gl=US](https://play.google.com/store/apps/details?id=com.philips.lighting.hue2&hl=en_US&gl=US) (last visited January 29, 2021) (offering the application for download and indicating that the application is offered by "Signify Netherlands B.V."); *WiZ*, GOOGLE PLAY, [https://play.google.com/store/apps/details?id=com.tao.wiz&hl=en\\_US&gl=US](https://play.google.com/store/apps/details?id=com.tao.wiz&hl=en_US&gl=US) (last visited January 29, 2021) (offering the application for download and indicating that the application is offered by "WiZ Connected Lighting Company Limited").

13. Based on Signify's connections and relationship with its U.S.-based these national retailers and digital distribution platforms, Signify knows that Texas is a termination point of the

established distribution channel, namely online and brick and mortar stores offering Signify wireless lighting devices and software to consumers in Texas. Signify, therefore, has purposefully directed its activities at Texas, and should reasonably anticipate being brought in this Court, at least on this basis. *See Icon Health & Fitness, Inc. v. Horizon Fitness, Inc.*, 2009 WL 1025467, at (E.D. Tex. 2009) (finding that “[a]s a result of contracting to manufacture products for sale in” national retailers’ stores, the defendant “could have expected that it could be brought into court in the states where [the national retailers] are located”).

14. In the alternative, this Court has personal jurisdiction over Signify under Federal Rule of Civil Procedure 4(k)(2), because the claims for patent infringement in this action arise under federal law, Signify is not subject to the jurisdiction of the courts of general jurisdiction of any state, and exercising jurisdiction over Signify is consistent with the U.S. Constitution.

15. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1391. Defendant Signify is a foreign entity and may be sued in any judicial district under 28 U.S.C. § 1391(c).

16. On information and belief, Signify has significant ties to, and presence in, the State of Texas and the Eastern District of Texas, making venue in this judicial district both proper and convenient for this action.

#### **THE ASSERTED PATENTS AND TECHNOLOGY**

17. The Asserted Patents cover various aspects of monitoring, detecting intrusions, and encrypting and decrypting wireless communications networks, including networks created between Defendants’ wireless lighting devices.

18. The ’117 patent involves detecting intrusions into a wireless communication network by monitoring transmissions among nodes of the network. The disclosed intrusion detection techniques of the ’117 patent include monitoring, by a policing node, transmissions among a

plurality of nodes of a mobile ad-hoc network (MANET). Such nodes of the MANET intermittently operate in a contention-free mode during a contention-free period. The policing node detects intrusions by monitoring the transmissions between the MANET nodes to detect contention-free mode operation outside of a contention-free period. Based on such a detection, an intrusion alert may be generated.

19. The '678 patent involves detecting intrusions into a wireless local or metropolitan area network. The disclosed intrusion detection techniques include monitoring transmission between stations of the network, where each station has its own media access layer (MAC) address. The monitoring is done to detect failed attempts to authenticate the MAC addresses. Upon detection of a number of failed attempts to authenticate, an intrusion alert may be generated.

20. The '961 patent involves allocating channels in mobile ad hoc networks. The patent describes dynamic channel allocation in such networks to efficiently make use of a plurality of channels. In such networks, wireless communication links connect wireless mobile nodes over multiple separate channels at different frequencies. The disclosed techniques for channel allocation include monitoring link performance on one channel based on a quality of service (QoS) threshold. When the monitored link performance falls below the QoS threshold, other available separate channels are scouted. Scouting may include switching to a second separate channel at a different frequency. A channel activity query may be broadcast to determine link performance of the second separate channel. Replies to the query are processed to determine the link performance, and channel activity may be updated for each separate channel based on the replies.

21. The '572 patent involves providing secure wireless local area networks (LAN). A device for securing such a LAN may include a housing with a wireless transceiver carried by the housing. A medium access controller (MAC) also carried by the housing. A cryptography circuit

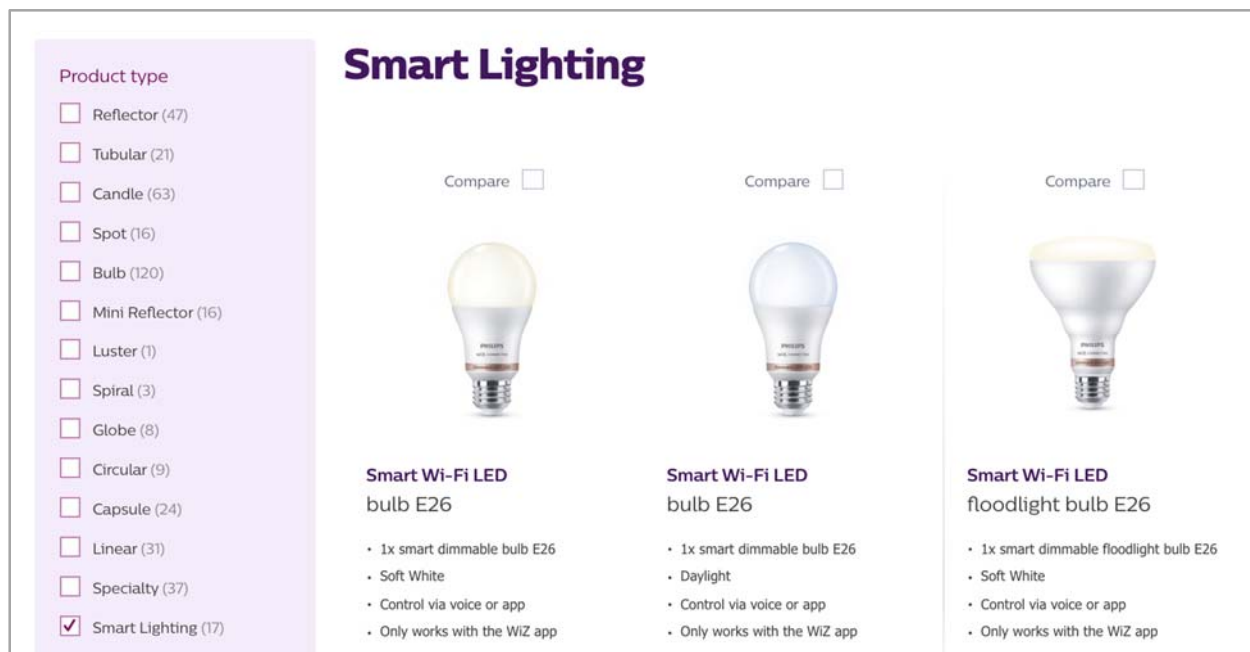


may be connected to the MAC controller and the transceiver. The circuit may encrypt both address and data information by at least adding a plurality of encrypting bits to be transmitted. And the cryptography circuit may decrypt both address and data information upon reception.

22. Upon information and belief, a significant portion of Defendant's operating revenue is derived from the manufacture and sale of wireless lighting devices. For example, Signify utilizes its U.S.-based subsidiaries, including Signify NA and WiZ, distributors, customers, partners, and retailers to provide wireless lighting devices to consumers. Signify's revenue for the Accused Products is substantially represented by its LED and Home divisions. *See Annual Report 2019, SIGNIFY*, at 25 ("In LED electronics, the aim is to lead the transition to smart lighting"); *Id.* at 27 (Discussing sales and innovation for Philips Hue brand under the "Home" section of the report). Signify reported that, in 2019, its LED division had 1.891 billion euros in sales, accounting for 12.7% of Signify's total sales. *Id.* at 25. Signify also reported that, in 2019, its Home division had 521 million euros in sales, accounting for 3.8% of Signify's total sales. *Id.* at 27. Signify states that its strategy in both divisions is to increase sales of its wireless lighting devices. *See id.* at 25 ("LED will drive growth in LED electronics through the transition to smart lighting"); *id.* at 27 ("The consumer lighting market is expected to benefit from...the increasing adoption of connected home lighting systems.")

23. Signify's wireless lighting devices use IEEE 802.11 and ZigBee protocols to enable communication between Signify's devices. *See, e.g., Smart Wi-Fi LED lighting*, PHILIPS, <https://www.usa.lighting.philips.com/consumer/smart-wifi-led> (last visited Jan. 25, 2021); *How Philips Hue Works*, PHILIPS HUE, <https://www.philips-hue.com/en-us/explore-hue/how-it-works#get-started> (last visited Jan. 25, 2021) ("Adding a Hue Bridge activates the built-in Zigbee network").

24. The Asserted Patents cover wireless communication methods that are incorporated into IEEE 802.11 and ZigBee protocols and the products that utilize them, such as Signify's wireless lighting devices, their components, and processes related to the same (the "Accused Products"). For example, Signify's Philips Lighting brand products are Wi-Fi compliant, and utilize IEEE 802.11 protocols. *See, e.g., Smart Wi-Fi LED lighting, PHILIPS, supra.* Examples of Wi-Fi connected Phillips Lighting products are shown below:



 <p><b>Smart Wi-Fi LED</b> globe E26</p> <ul style="list-style-type: none"> <li>• 1x smart dimmable globe E26</li> <li>• Soft White</li> <li>• Control via voice or app</li> <li>• Only works with the WiZ app</li> </ul> <p>Compare <input type="checkbox"/></p>	 <p><b>Smart Wi-Fi LED</b> globe E26</p> <ul style="list-style-type: none"> <li>• 1x smart dimmable globe E26</li> <li>• Amber Light</li> <li>• Control via voice or app</li> <li>• Only works with the WiZ app</li> </ul> <p>Compare <input type="checkbox"/></p>	 <p><b>Smart Wi-Fi LED</b> Edison bulb E26</p> <ul style="list-style-type: none"> <li>• 1x smart dimmable Edison bulb E26</li> <li>• Soft White</li> <li>• Control via voice or app</li> <li>• Only works with the WiZ app</li> </ul> <p>Compare <input type="checkbox"/></p>
 <p><b>Smart Wi-Fi LED</b> Edison bulb E26</p>	 <p><b>Smart Wi-Fi LED</b> bulb E26</p>	 <p><b>Smart Wi-Fi LED</b> floodlight bulb E26</p>

Source: [https://www.usa.lighting.philips.com/consumer/choose-a-bulb/products#filters=SMARTLIGHTING\\_BULB\\_SU&sliders=&support=&price=&priceBoxes=&page=&layout=](https://www.usa.lighting.philips.com/consumer/choose-a-bulb/products#filters=SMARTLIGHTING_BULB_SU&sliders=&support=&price=&priceBoxes=&page=&layout=).

25. Further, products sold by Signify's subsidiary WiZ are also Wi-Fi compliant and utilize IEEE 802.11 protocols:



Source: <https://www.wizconnected.com/en-US/>

The new Wi-Fi + Bluetooth mesh architecture makes the WiZ platform more flexible and reliable, which is why we call it ROBUST. Tasks can be worked on and upgraded separately without impacting other tasks. This new platform will be rolled out from Q1 2021 onwards. Some of the existing WiZified products will be upgradable to ROBUST via OTA update around then.

 CONNECTIVITY	 NOTIFICATIONS	 LIGHT ENGINE	 FIRMWARE	 PAIRING	 CHIP	 SENSING
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Source: <https://www.wizconnected.com/en-US/innovation/>.

WiZ is proud to announce that it has been acquired by Signify (formerly Philips Lighting), the world leader in lighting for professionals and consumers, and connected lights. WiZ Connected will continue to operate as an autonomous entity, selling its Wi-Fi-based connected products under its own brand name and licensing its open platform technology to other electrical and lighting vendors via co-labelling.


Source: <https://www.wizconnected.com/en-US/about-wiz/>.

26. Through WiZ, Signify sells Wi-Fi compliant wireless lighting products that utilize IEEE 802.11 protocols. Examples of Wi-Fi connected WiZ products are shown below:



Source: <https://www.wizconnected.com/en-US/consumer/products/>.

27. Signify offers the WiZ mobile application for controlling Wi-Fi-enabled Signify products. The WiZ application can control Signify's Phillips Lighting brand products as well as Signify's WiZ brand products over Wi-Fi:




[PRODUCTS](#)
[TECHNOLOGY](#)
[APP](#)
[SUPPORT](#)
[FOR BUSINESS](#)



# COMPLETE AND UTTER CONTROL

Our patented WiZ technology lets you enjoy full control of all your lights whether it's through Wi-Fi, mobile data networks, the infrared remote or your existing switches. By giving you more ways to control, you're spoilt for choice when it comes to how you'd like to interact with light.


## WORKS WITH YOUR EXISTING Wi-Fi ROUTER





Each WiZ light has its own Wi-Fi chip for smarter automation and is directly, constantly and reliably connected to the cloud for up-to-date preferences and settings. The architecture we built up lets you enjoy any individual WiZ light immediately. Your privacy is protected via anonymous sign-in and TLS 1.2 encrypted cloud connections. No fuss. Everything is on the cloud and works with your existing Wi-Fi router.

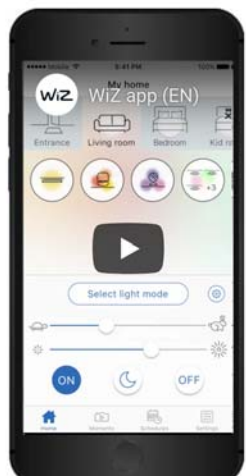



Source: <https://www.wizconnected.com/en-US/consumer/technology/>



Download the free WiZ app and enjoy one of the most advanced light control systems for your home, business or workplace.



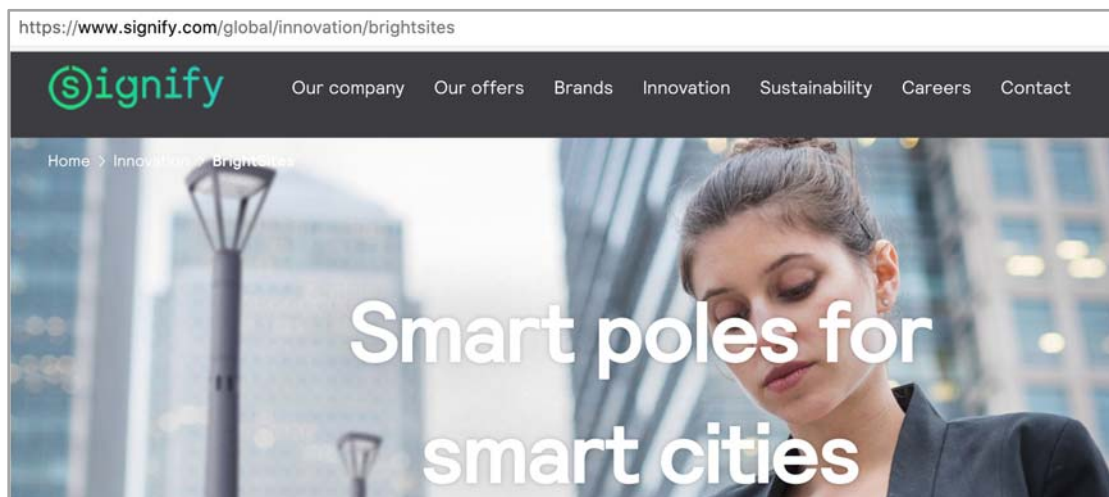
Source: <https://www.wizconnected.com/en-US/consumer/app/>

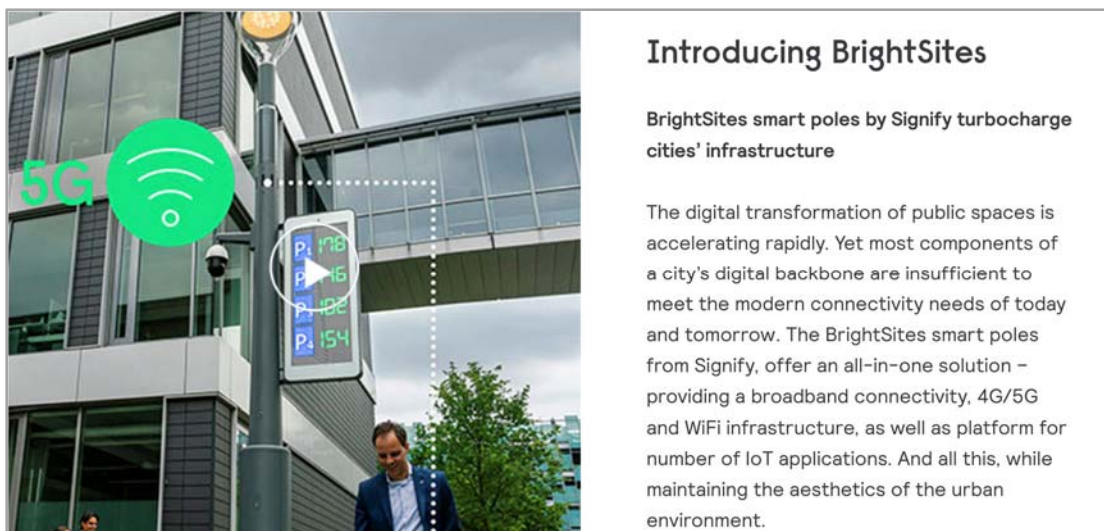




Source: <https://www.usa.lighting.philips.com/consumer/smart-wifi-led>.

28. Signify also offers BrightSites smart poles—Wi-Fi compliant poles for use in providing Wi-Fi infrastructure and broadband connectivity in cities.





Source: <https://www.signify.com/global/innovation/brightsites>.

29. IEEE 802.11 is a wireless communication standard covered by the Asserted Patents and utilized by certain Accused Products. The IEEE 802.11 standard defines a wireless local area network (WLAN) including multiple mobile nodes. Below is an excerpt from the IEEE which discusses a basic overview of the standard, including its use in wireless connectivity.

## 1. Overview

### 1.1 Scope

The scope of this standard is to define one medium access control (MAC) and several physical layer (PHY) specifications for wireless connectivity for fixed, portable, and moving stations (STAs) within a local area.

### 1.2 Purpose

The purpose of this standard is to provide wireless connectivity to automatic machinery, equipment, or STAs that require rapid deployment, which may be portable or hand-held, or which may be mounted on moving vehicles within a local area. This standard also offers regulatory bodies a means of standardizing access to one or more frequency bands for the purpose of local area communication.

Specifically, this standard

- Describes the functions and services required by an IEEE 802.11™-compliant device to operate within ad hoc and infrastructure networks as well as the aspects of STA mobility (transition) within those networks.
- Defines the MAC procedures to support the asynchronous MAC service data unit (MSDU) delivery services.
- Defines several PHY signaling techniques and interface functions that are controlled by the IEEE 802.11 MAC.



- Defines the MAC procedures to support local area network (LAN) applications with quality of service (QoS) requirements, including the transport of voice, audio, and video.

IEEE Std. 802.11<sup>TM</sup>, 2007 revision at 49-50, IEEE, <https://www.iith.ac.in/~tbr/teaching/docs/802.11-2007.pdf> (June 12, 2007).

30. The IEEE 802.11 standard also includes security features such as encrypting data information within a network and defending the network against attacks. These features, described in the below excerpts, are utilized by certain Accused Products in order to protect devices within the network.

### 8.3.2.3 TKIP MIC

Flaws in the IEEE 802.11 WEP design cause it to fail to meet its goal of protecting data traffic content from casual eavesdroppers. Among the most significant WEP flaws is the lack of a mechanism to defeat message forgeries and other active attacks. To defend against active attacks, TKIP includes a MIC, named Michael. This MIC offers only weak defenses against message forgeries, but it constitutes the best that can be achieved with the majority of legacy hardware. TKIP uses different MIC keys depending on the direction of the transfer as described in 8.6.1 and 8.6.2.

Annex H contains an implementation of the TKIP MIC. It also provides test vectors for the MIC.

#### 8.3.2.3.1 Motivation for the TKIP MIC

Before defining the details of the MIC, it is useful to review the context in which this mechanism operates. Active attacks enabled by the original WEP design include the following:

- Bit-flipping attacks
- Data (payload) truncation, concatenation, and splicing
- Fragmentation attacks
- Iterative guessing attacks against the key
- Redirection by modifying the MPDU DA or RA field
- Impersonation attacks by modifying the MPDU SA or TA field

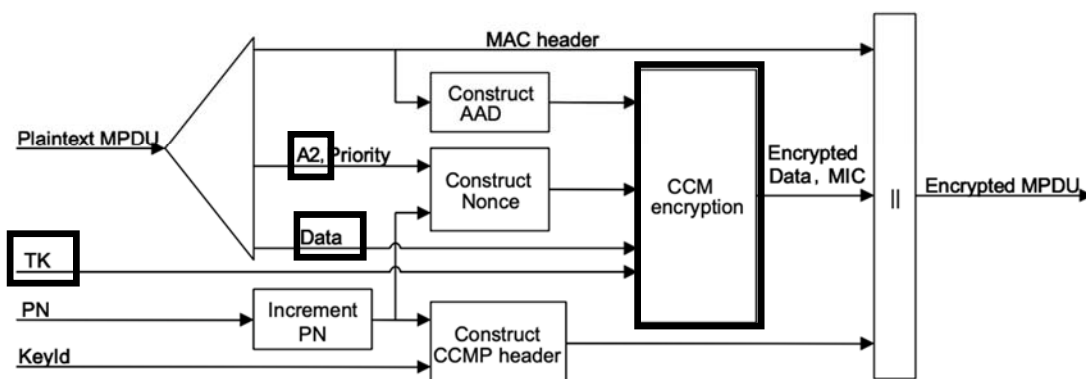
The MIC makes it more difficult for any of these attacks to succeed.

All of these attacks remain at the MPDU level with the TKIP MIC. The MIC, however, applies to the MSDU, so it blocks successful MPDU-level attacks. TKIP applies the MIC to the MSDU at the transmitter and verifies it at the MSDU level at the receiver. If a MIC check fails at the MSDU level, the implementation shall discard the MSDU and invoke countermeasures (see 8.3.2.4).

*Id.* at 217.

### 8.3.3.3 CCMP cryptographic encapsulation

The CCMP cryptographic encapsulation process is depicted in Figure 8-16.



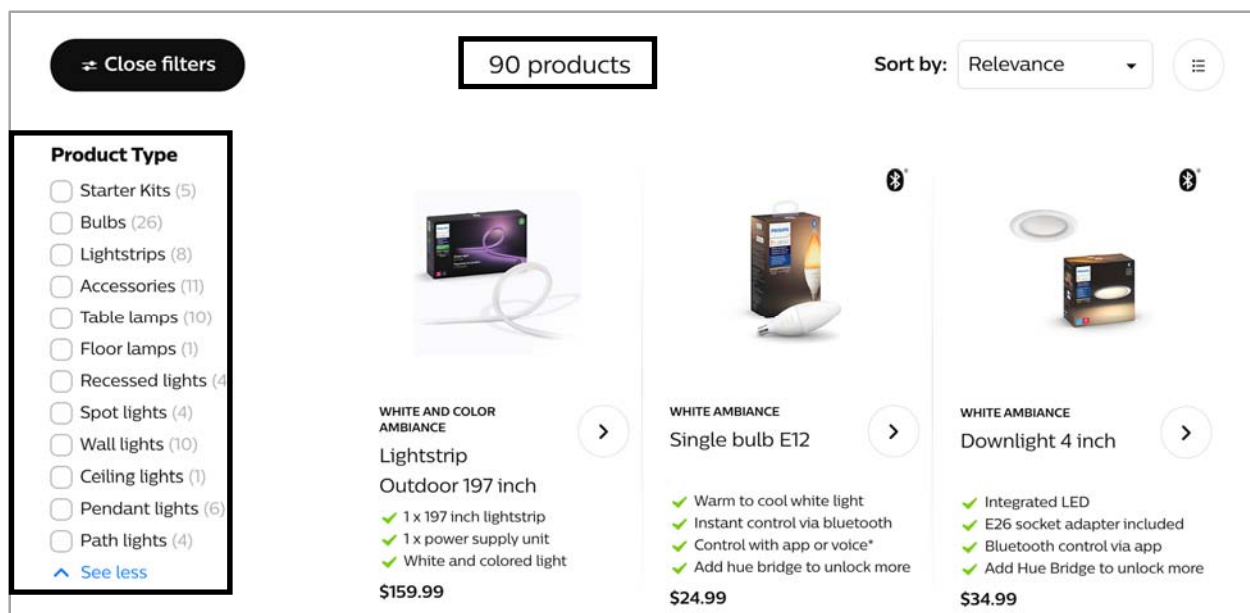
**Figure 8-16—CCMP encapsulation block diagram**

CCMP encrypts the payload of a plaintext MPDU and encapsulates the resulting cipher text using the following steps:

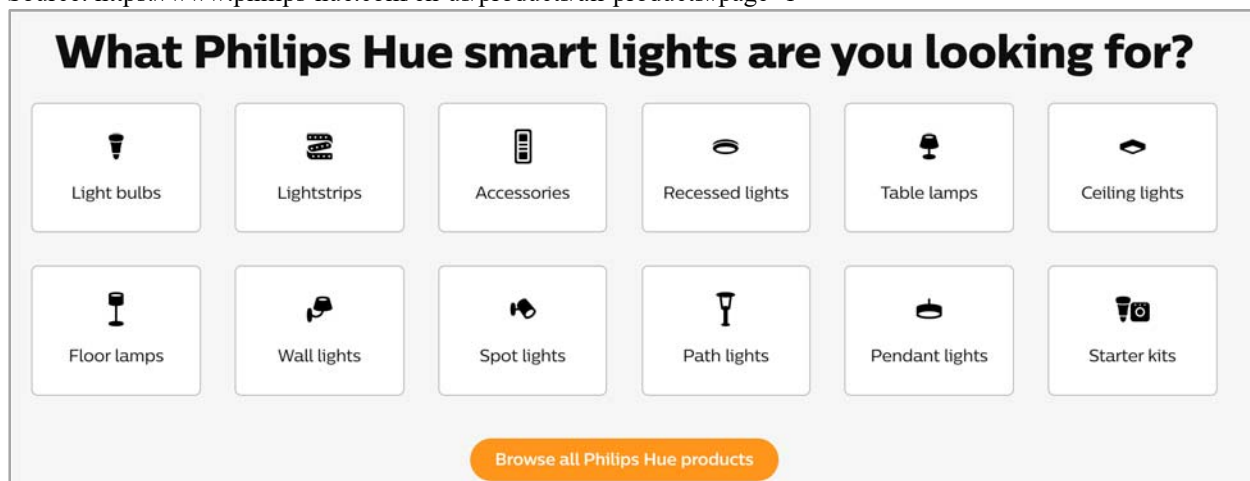
- a) Increment the PN, to obtain a fresh PN for each MPDU, so that the PN never repeats for the same temporal key. Note that retransmitted MPDUs are not modified on retransmission.
- b) Use the fields in the MPDU header to construct the additional authentication data (AAD) for CCM. The CCM algorithm provides integrity protection for the fields included in the AAD. MPDU header fields that may change when retransmitted are muted by being masked to 0 when calculating the AAD.
- c) Construct the CCM Nonce block from the PN, A2, and the Priority field of the MPDU where A2 is MPDU Address 2.
- d) Place the new PN and the key identifier into the 8-octet CCMP header.
- e) Use the temporal key, AAD, nonce, and MPDU data to form the cipher text and MIC. This step is known as CCM originator processing.
- f) Form the encrypted MPDU by combining the original MPDU header, the CCMP header, the encrypted data and MIC, as described in 8.3.3.2.

*Id.* at 229.

31. Further, Signify's Philips Hue products and other wireless lighting products utilize ZigBee protocols. *See, How Philips Hue Works*, PHILIPS HUE, *supra*. The Accused Products include at least Signify's Philips Hue brand of devices. Examples of Philips Hue devices are shown below:



Source: <https://www.philips-hue.com/en-us/products/all-products#page=1>



Source: <https://www.philips-hue.com/en-us/explore-hue/how-it-works#get-started>


32. Signify's Philips Hue products utilize ZigBee protocols to communicate across a wireless network composed of various Philips Hue products, such as the Philips Hue Bridge and Philips Hue lights. Philips Hue products can be controlled via the Philips Hue mobile application:

Philips Hue with Bridge

## Unlock the full experience

Adding a Hue Bridge activates the built-in **Zigbee network** — a more advanced way to control your lights — and unlocks the full suite of smart lighting features: add up to 50 bulbs, set routines, and more.


[Get started with Bridge](#) ✓



## Set up a Bridge-controlled system


With any Hue light — including Bluetooth-compatible lights — and the Hue app, you control the lights in your entire home.

1




Install your Hue lights

2



Connect a Hue Bridge

3



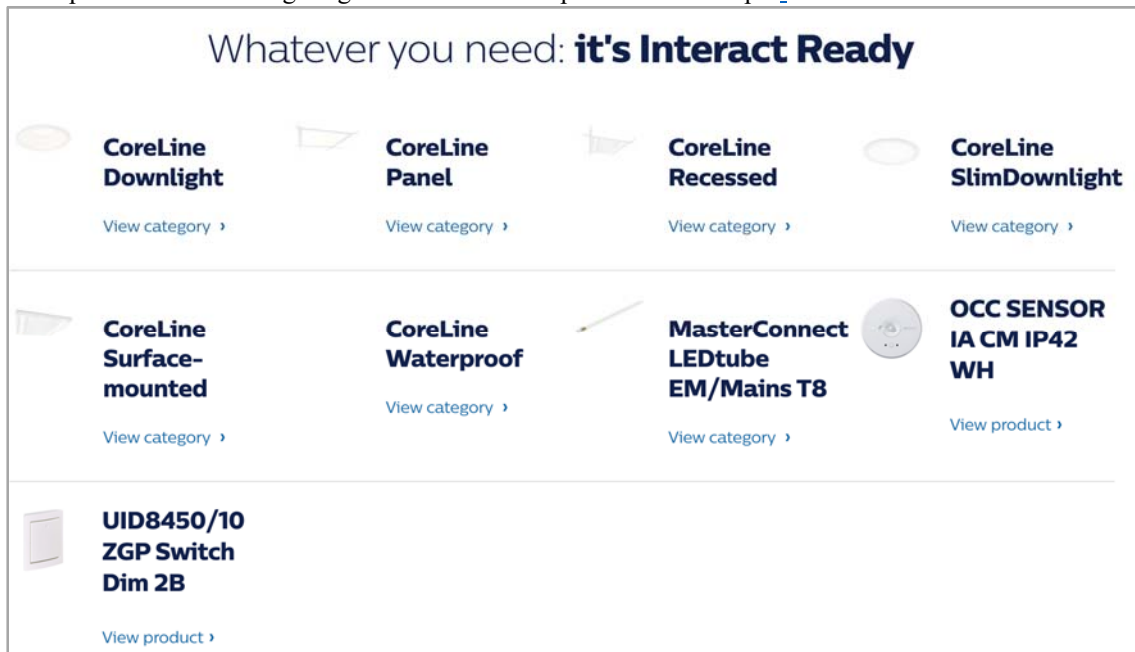
[Download the Hue app](#) >

Source: <https://www.philips-hue.com/en-us/explore-hue/how-it-works#get-started>

33. Additionally, Signify's Interact brand of products also utilize ZigBee protocols. Signify's Interact products include various wireless lighting products connected to each other and the Interact Pro gateway product. Signify also offers the Interact Pro mobile app for controlling Interact products.

The Interact Pro software and gateway works seamlessly with Interact Ready LED luminaires, lamps and sensors from Philips to create a connected lighting infrastructure that offers installers a secure transition to connected lighting. Data generated from projects can be used for service contracts based alerts on light failures, optimized energy usage and light schemes.

Source: [https://www.interact-lighting.com/en-in/what-is-possible/interact-pro\\_](https://www.interact-lighting.com/en-in/what-is-possible/interact-pro_)



Source: <https://www.lighting.philips.com/main/products/interact-ready>.





## Interact Pro gateway

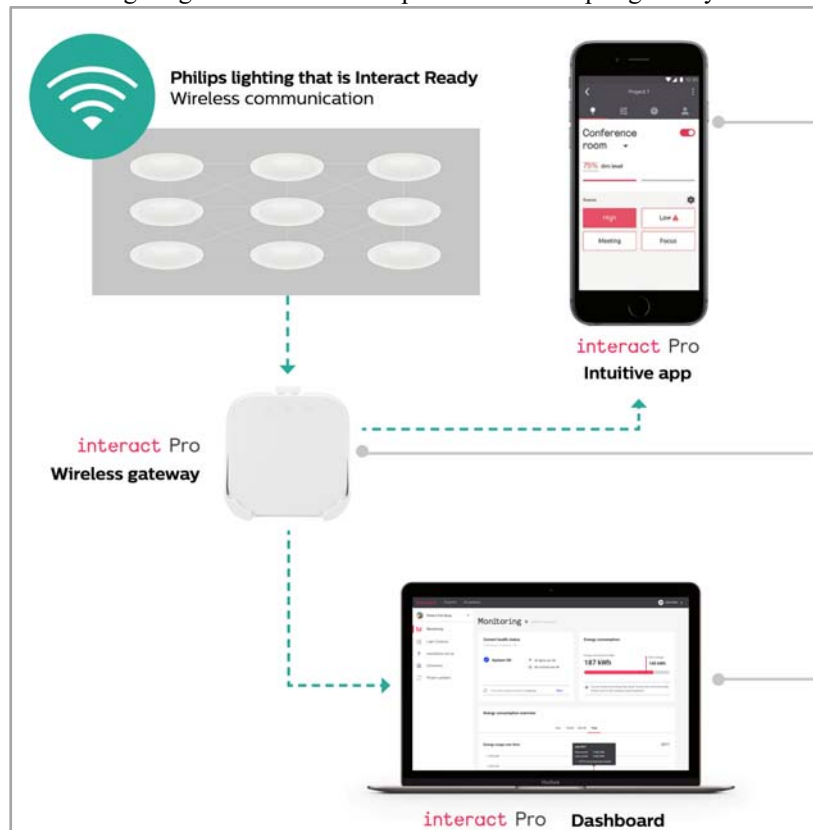
### The heart of the connected lighting system

Interact Pro gateway is the heart of the connected lighting system. It connects the system to the cloud via the Internet. It enables the Interact Ready luminaires, lamps and accessories to communicate sending information to the cloud and the system to be accessed via the Interact Pro apps and dashboard. The gateway features an easy commissioning process during the initial installation.

The Interact Pro gateway establishes secure wireless Zigbee connections with up to 200 light points. The wireless connection allows bi-directional control and sensor data to be exchanged between Interact Ready luminaires, lamps, sensors and switches and the Interact Pro system and software.



Source: <https://www.interact-lighting.com/en-in/what-is-possible/interact-pro/gateway>.



Source: [https://images.philips.com/is/content/PhilipsConsumer/PDFDownloads/Global/PDFs/ODLI06062018\\_en\\_AA\\_Interact\\_Ready\\_RPRQ\\_brochure\\_A4.pdf](https://images.philips.com/is/content/PhilipsConsumer/PDFDownloads/Global/PDFs/ODLI06062018_en_AA_Interact_Ready_RPRQ_brochure_A4.pdf), p. 5

34. ZigBee protocols, which are covered by the Asserted Patents and utilized by certain Accused Products, are based on the IEEE 802.15.4 standard for wireless network communication. Below is an excerpt from the technical specification for ZigBee protocols describing the basic architecture and standards that enable wireless network communication.

## 1.1 Protocol Description

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The ZigBee Alliance has developed a very low-cost, very low-power-consumption, two-way, wireless communications standard. Solutions adopting the ZigBee standard will be embedded in consumer electronics, home and building automation, industrial controls, PC peripherals, medical sensor applications, toys, and games.

### 1.1.3 Stack Architecture

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The ZigBee stack architecture is made up of a set of blocks called layers. Each layer performs a specific set of services for the layer above. A data entity provides a data transmission service and a management entity provides all other services. Each service entity exposes an interface to the upper layer through a service access point (SAP), and each SAP supports a number of service primitives to achieve the required functionality.

The IEEE 802.15.4 standard defines the two lower layers: the physical (PHY) layer and the medium access control (MAC) sub-layer. The ZigBee Alliance builds on this foundation by providing the network (NWK) layer and the framework for the application layer. The application layer framework consists of the application support sub-layer (APS) and the ZigBee device objects (ZDO). Manufacturer-defined application objects use the framework and share APS and security services with the ZDO.

The PHY layer operates in two separate frequency ranges: 868/915 MHz and 2.4 GHz. The lower frequency PHY layer covers both the 868 MHz European band and the 915 MHz band, used in countries such as the United States and Australia. The higher frequency PHY layer is used virtually worldwide. A complete description of the PHY layers can be found in [B1].

*ZigBee Specification*, revision r21 at 1, THE ZIGBEE ALLIANCE, <https://zigbeealliance.org/wp-content/uploads/2019/11/docs-05-3474-21-0csg-zigbee-specification.pdf> (August 5, 2015).

35. The IEEE 802.15.4 standard based mobile ad-hoc network, utilized by the Accused Products, is a type of Low-Rate Wireless Personal Area Network (LR-WPAN) that allows transmission of data between plurality of network nodes. The types of nodes include an FFD—full-function device (functioning as a network coordinator node) and an RFD—reduced function device (node that associates itself with the FFD).

IEEE STANDARDS ASSOCIATION

**IEEE Standard for**  
**Local and metropolitan area networks—**

**Part 15.4: Low-Rate Wireless Personal Area**  
**Networks (LR-WPANs)**

**4. General description**

**4.1 General**

An LR-WPAN is a simple, low-cost communication network that allows wireless connectivity in applications with limited power and relaxed throughput requirements. The main objectives of an LR-WPAN are ease of installation, reliable data transfer, extremely low cost, and a reasonable battery life, while maintaining a simple and flexible protocol.

Two different device types can participate in an IEEE 802.15.4 network: a full-function device (FFD) and a reduced-function device (RFD). An FFD is a device that is capable of serving as a personal area network (PAN) coordinator or a coordinator. An RFD is a device that is not capable of serving as either a PAN coordinator or a coordinator. An RFD is intended for applications that are extremely simple, such as a light switch or a passive infrared sensor; it does not have the need to send large amounts of data and only associates with a single FFD at a time. Consequently, the RFD can be implemented using minimal resources and memory capacity.

**4.2 Components of the IEEE 802.15.4 WPAN**

A system conforming to this standard consists of several components. The most basic is the device. Two or more devices communicating on the same physical channel constitute a WPAN. However, this WPAN includes at least one FFD, which operates as the PAN coordinator.

Page 8, [http://ecee.colorado.edu/~liue/teaching/comm\\_standards/2015S\\_zigbee/802.15.4-2011.pdf](http://ecee.colorado.edu/~liue/teaching/comm_standards/2015S_zigbee/802.15.4-2011.pdf)

36. By utilizing IEEE 802.11 and/or ZigBee protocols, the Accused Products perform methods for communication, routing, and organizing network nodes within wireless communications networks that are covered by the Asserted Patents. Each respective Count below describes how the Accused Products infringe on specific claims of the Asserted Patents.

## **COUNT I**

(INFRINGEMENT OF U.S. PATENT NO. 7,082,117)

37. Plaintiff incorporates paragraphs 1 through 36 herein by reference.



38. Plaintiff is the assignee of the '117 patent, entitled "Mobile ad-hoc network with intrusion detection features and related methods," with ownership of all substantial rights in the '117 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

39. The '117 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '117 patent issued from U.S. Patent Application No. 10/401,004.

40. Signify has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '117 patent in this judicial district and elsewhere in Texas and the United States.

41. Upon information and belief, Signify designs, develops, manufactures, assembles, and markets wireless lighting devices configured to utilize ZigBee protocols such as the Accused Products (*see How Philips Hue Works*, PHILIPS HUE, *supra*), including via Signify's subsidiaries, such as Signify NA, partners, distributors, retails, customers, and consumers.

42. Signify directly infringes the '117 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing the Accused Products, their components, and/or products containing the same that incorporate the fundamental technologies covered by the '117 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, upon information and belief, Signify sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States,

thereby directly infringing the '117 patent. *See, e.g., Lake Cherokee Hard Drive Techs., L.L.C. v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013) (denying summary judgment and allowing presentation to jury as to “whether accused products manufactured and delivered abroad but imported into the United States market by downstream customers ... constitute an infringing sale under § 271(a)”).

43. Furthermore, Defendant Signify directly infringes the '117 patent through its direct involvement in the activities of its subsidiaries, including Signify NA, including by selling and offering for sale the Accused Products directly to Signify NA and importing the Accused Products into the United States for Signify NA. Upon information and belief, Signify NA conducts activities that constitutes direct infringement of the '117 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. Signify is vicariously liable for this infringing conduct of Signify NA (under both the alter ego and agency theories) because, as an example and on information and belief, Signify and Signify NA are essentially the same company, and Signify has the right and ability to control Signify NA's infringing acts and receives a direct financial benefit from Signify's infringement.

44. For example, Signify infringes claim 24 of the '117 patent via the Accused Products such as Philips Hue Bridge, Philips Hue lighting (including bulbs, lightstrips, recessed lights, ceiling lights, spot lights, path lights, and pendant lights), Philips Interact Pro Gateway, Philips CoreLine Downlight, Philips CoreLine Panel, Philips CoreLine Recessed, Philips CoreLine SlimDownlight, Philips CoreLine Surface-mounted, Philips CoreLine Waterproof, Philips MasterConnect LEDtub EM/Mains T8, Philips OCC Sensor IA CM IP42 WH, and Philips UID8450/10 ZGP Switch Dim 2B, which utilize ZigBee protocols.

45. The Accused Products comprise a “mobile ad-hoc network (MANET)” as in claim

24. Each of the Accused Products utilizes ZigBee protocols. ZigBee protocols are based on the IEEE 802.15.4 standard and involve communication between two or more devices on a wireless channel. *See* THE ZIGBEE ALLIANCE, *supra*.

46. The Accused Products comprise a plurality of nodes for transmitting data therebetween, said plurality of nodes intermittently operating in a contention-free mode during contention-free periods (CFPs) and in a contention mode outside CFPs. For example, by utilizing ZigBee protocols, the Accused Products establish a LR-WPAN network that transmits data among multiple devices (i.e., a plurality of nodes) and allows use of a superframe structure. The superframe includes a CFP and a contention access period (CAP) (i.e., a contention mode outside CFPs).

47. The Accused Products comprise “a policing node for detecting intrusions into the MANET by monitoring transmissions along said plurality of nodes to detect contention-free mode operation outside of a CFP.” For example, by utilizing ZigBee protocols, the Accused Products include a PAN coordinator (i.e., a policing node) which monitors if a device’s request to add a new GTS (e.g., to an existing CFS in the superframe) would result in reduction of the minimum CAP length. A newly requested GTS lies outside an existing CFP and will be used for transmission by the requesting device.

48. The Accused Products comprise “a policing node for detecting intrusions into the MANET by...generating an intrusion alert based upon detecting contention-free mode operation outside a CFP.” For example, the PAN coordinator preserves the minimum CAP length and takes preventative action (i.e., generates an intrusion alert) if the minimum CAP is not satisfied. This preventative action can include deallocating one or more of the GTSS.

49. The technology discussion above and the exemplary Accused Products provide

context for Plaintiff's infringement allegations.

50. At a minimum, Signify has known of the '117 patent at least as early as the filing date of this complaint. In addition, Signify has known about the '117 patent since at least March 12, 2018, when Signify (under its previous name as Philips Lighting) received a letter regarding infringement of the patent portfolio, including the '117 patent, related to wireless communication network products, which specifically referenced the infringing use of ZigBee standards and included a list of Signify's infringing products.

51. Upon information and belief, since at least the above-mentioned date when Signify was on notice of its infringement, Signify has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '117 patent to directly infringe one or more claims of the '117 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, Signify does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '117 patent. Upon information and belief, Signify intends to cause, and has taken affirmative steps to induce, infringement by distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing ZigBee protocol features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to purchasers in the United States. *See, e.g., Smart mood*

*lighting*, PHILIPS HUE, [https://www.philips-hue.com/en-us/explore-hue/propositions/personal-mood-lighting?origin=8rOWCaZO&pcrid=438137758935|mckv|s8rOWCaZO\\_dc|plid||slid||pgrid|86117087888|ptaid|aud-517506575422:kwd-44175898474|product||&gclid=EAiaIQobChMIuajvo7bC7gIVHCmzAB3gxwGZEAAYASAAEgK5yvD\\_BwE](https://www.philips-hue.com/en-us/explore-hue/propositions/personal-mood-lighting?origin=8rOWCaZO&pcrid=438137758935|mckv|s8rOWCaZO_dc|plid||slid||pgrid|86117087888|ptaid|aud-517506575422:kwd-44175898474|product||&gclid=EAiaIQobChMIuajvo7bC7gIVHCmzAB3gxwGZEAAYASAAEgK5yvD_BwE) (last visited January 29, 2021) (“Control up to 10 lights in a single room with a Bluetooth-enabled LED bulb and the Hue Bluetooth app”).

52. Upon information and belief, despite having knowledge of the ’117 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’117 patent, Signify has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Signify’s infringing activities relative to the ’117 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

53. Stingray has been damaged as a result of Signify’s infringing conduct described in this Count. Signify is thus liable to Stingray in an amount that adequately compensates Stingray for Signify’s infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

## **COUNT II**

(INFRINGEMENT OF U.S. PATENT NO. 7,224,678)

54. Plaintiff incorporates paragraphs 1 through 53 herein by reference.

55. Plaintiff is the assignee of the ’678 patent, entitled “Wireless local or metropolitan area network with intrusion detection features and related methods,” with ownership of all

substantial rights in the '678 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

56. The '678 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '678 patent issued from U.S. Patent Application No. 10/217,042.

57. Signify has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '678 patent in this judicial district and elsewhere in Texas and the United States.

58. Upon information and belief, Signify designs, develops, manufactures, assembles, and markets wireless lighting devices configured to comply with IEEE 802.11 standards. *See Smart Wi-Fi LED lighting, PHILIPS, supra.*

59. Signify directly infringes the '678 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing the Accused Products, their components, and/or products containing the same that incorporate the fundamental technologies covered by the '678 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, upon information and belief, Signify sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '678 patent. *See, e.g., Lake Cherokee Hard Drive Techs., L.L.C. v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). (denying summary judgment and allowing presentation to jury as to “whether accused products manufactured and

delivered abroad but imported into the United States market by downstream customers ... constitute an infringing sale under § 271(a)").

60. Furthermore, Signify directly infringes the '678 patent through its direct involvement in the activities of its subsidiaries, including Signify NA, including by selling and offering for sale the Accused Products directly to Signify NA and importing the Accused Products into the United States for Signify NA. Upon information and belief, Signify NA conducts activities that constitutes direct infringement of the '678 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. Signify is vicariously liable for this infringing conduct of Signify NA (under both the alter ego and agency theories) because, as an example and on information and belief, Signify and Signify NA are essentially the same company, and Signify has the right and ability to control Signify NA's infringing acts and receives a direct financial benefit from Signify's infringement.

61. For example, Signify infringes claim 51 of the '678 patent via the Accused Products such as Philips Lighting Smart Wi-Fi LED bulbs, WiZ bulbs (including bulbs, candle bulbs, Reflector & Globe bulbs, and filament bulbs), WiZ Smart Plugs, WiZ LED Strips, WiZ Motion Sensor, WiZmote, WiZ Smart Dimmer, and BrightSite smart poles, which utilize IEEE 802.11 protocols.

62. The Accused Products perform the "intrusion detection method for a wireless local or metropolitan area network comprising a plurality of stations" of claim 51. Each of the Accused Products complies with IEEE 802.11 standards. IEEE 802.11 is a standard for wireless connectivity for fixed, portable, and moving stations ("STAs") within a mobile area. *See* IEEE, *supra*.

63. The Accused Products transmit data between the plurality of stations using a media

access layer (MAC), each of the stations having a respective MAC address associated therewith. For example, by complying with IEEE 802.11 standards, the Accused Products transmit data between other STAs in their network in the form of MPDUs (medium access control (MAC) protocol data units). An MPDU comprises a sequence of ordered fields; one such field includes the MAC address of the STA.

64. The Accused Products monitor transmissions among the plurality of stations to detect failed attempts to authenticate MAC addresses. For example, an 802.11-compliant device with a robust security network association (RSNA) can contain the Temporal Key Integrity Protocol (TKIP) for data confidentiality and integrity. In TKIP, an MSDU transmitter STA calculates and monitors message integrity code (MIC) using the MAC addresses. MSDUs with invalid MICs are discarded (i.e., failed attempts).

65. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

66. At a minimum, Signify has known of the '678 patent at least as early as the filing date of this complaint. In addition, Signify has known about the '678 patent since at least March 12, 2018, when Signify (under its previous name as Philips Lighting) received a letter regarding infringement of the patent portfolio, including the '678 patent, related to wireless communication network products, which specifically referenced the infringing use of IEEE 802 standards and included a list of Signify's infringing products.

67. Upon information and belief, since at least the above-mentioned date when Signify was on notice of its infringement, Signify has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the



'678 patent to directly infringe one or more claims of the '678 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, Signify does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '678 patent. Upon information and belief, Signify intends to cause, and has taken affirmative steps to induce, infringement by distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing IEEE 802.11 protocol features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to purchasers in the United States. *See, e.g., Smart Lighting For Your Daily Living*, WiZ, <https://www.wizconnected.com/en-US/consumer/>, (last visited January 29, 2021) (“Take Absolute Control: Get your Wi-Fi lights to do what you want and more”).

68. Upon information and belief, despite having knowledge of the '678 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '678 patent, Signify has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Signify's infringing activities relative to the '678 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

69. Stingray has been damaged as a result of Signify's infringing conduct described in this Count. Signify is thus liable to Stingray in an amount that adequately compensates Stingray for Signify's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

### **COUNT III**

(INFRINGEMENT OF U.S. PATENT NO. 7,440,572)

70. Plaintiff incorporates paragraphs 1 through 69 herein by reference.

71. Plaintiff is the assignee of the '572 patent, entitled "Secure wireless LAN device and associated methods," with ownership of all substantial rights in the '572 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

72. The '572 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '572 patent issued from U.S. Patent Application No. 09/760,619.

73. Signify has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '572 patent in this judicial district and elsewhere in Texas and the United States.

74. Upon information and belief, Signify designs, develops, manufactures, assembles, and markets wireless lighting devices configured to utilize IEEE 802.11 protocols such as the Accused Products. *See Smart Wi-Fi LED lighting*, PHILIPS, *supra*.

75. Signify directly infringes the '572 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing the Accused Products, their components, and/or products containing the same that incorporate the fundamental technologies covered by the '572 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries,

and/or consumers. Furthermore, upon information and belief, Signify sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '426 patent. *See, e.g., Lake Cherokee Hard Drive Techs., L.L.C. v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). (denying summary judgment and allowing presentation to jury as to “whether accused products manufactured and delivered abroad but imported into the United States market by downstream customers ... constitute an infringing sale under § 271(a)”).

76. Furthermore, Signify directly infringes the '572 patent through its direct involvement in the activities of its subsidiaries, including Signify NA, including by selling and offering for sale the Accused Products directly to Signify NA and importing the Accused Products into the United States for Signify NA. Upon information and belief, Signify NA conducts activities that constitutes direct infringement of the '572 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. Signify is vicariously liable for this infringing conduct of Signify NA (under both the alter ego and agency theories) because, as an example and on information and belief, Signify and Signify NA are essentially the same company, and Signify has the right and ability to control Signify NA's infringing acts and receives a direct financial benefit from Signify's infringement.

77. For example, Signify infringes claim 1 of the '572 patent via the Accused Products such as Philips Lighting Smart Wi-Fi LED bulbs, WiZ bulbs (including bulbs, candle bulbs, Reflector & Globe bulbs, and filament bulbs), WiZ Smart Plugs, WiZ LED Strips, WiZ Motion

Sensor, WiZmote, WiZ Smart Dimmer, and BrightSite smart poles, which utilize IEEE 802.11 protocols.

78. The Accused Products comprise a “secure wireless local area network (LAN) device” as in claim 1. Each of the Accused Products complies with IEEE 802.11 standards. IEEE 802.11 is a standard for wireless connectivity for fixed, portable, and moving stations (“STAs”) within a mobile area. *See IEEE, supra.*

79. The Accused Products comprise a housing, a wireless transceiver carried by said housing, and a medium access controller (MAC) carried by said housing. For example, by complying with IEEE 802.11 standards, the Accused Products each represent a station (STA) (i.e., a device with a housing) that contains a MAC and wireless physical layer (PHY) interface transceivers.

80. The Accused Products comprise a cryptography circuit carried by said housing and connected to said MAC and said wireless transceiver for encrypting both address and data information for transmission by at least adding a plurality of encrypting bits to both the address and the data information, and for encrypting both the address and the data information upon reception. For example, an 802.11-compliant device with a robust security network association (RSNA) contains an enhanced data cryptographic encapsulation mechanism (i.e., a cryptography circuit) with two types of data confidentiality and integrity protocols: the mandatory Cipher-block Chaining Message authentication code Protocol (CCMP) and the optional Temporal Key Integrity Protocol (TKIP). CCMP encrypts both address and plaintext (i.e., data) information and adds temporal keys (i.e., encrypting bits) to both. TKIP likewise encrypts both address and plaintext information and adds MIC keys (i.e., encrypting bits) to both. Both protocols decrypt the information upon reception.

81. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

82. At a minimum, Signify has known of the '572 patent at least as early as the filing date of this complaint. In addition, Signify has known about the '572 patent since at least March 12, 2018, when Signify (under its previous name as Philips Lighting) received a letter regarding infringement of the patent portfolio, including the '572 patent, related to wireless communication network products, which specifically referenced the infringing use of IEEE 802 standards and included a list of Signify's infringing products.

83. Upon information and belief, since at least the above-mentioned date when Signify was on notice of its infringement, Signify has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '426 patent to directly infringe one or more claims of the '572 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, Signify does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '572 patent. Upon information and belief, Signify intends to cause, and has taken affirmative steps to induce, infringement by distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing ZigBee protocol features in the Accused Products, and/or providing technical support, replacement

parts, or services for these products to purchasers in the United States. *See, e.g., Smart Lighting For Your Daily Living*, WiZ, *supra* (“Take Absolute Control: Get your Wi-Fi lights to do what you want and more”).

84. Upon information and belief, despite having knowledge of the ’572 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’572 patent, Signify has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Signify’s infringing activities relative to the ’572 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

85. Stingray has been damaged as a result of Signify’s infringing conduct described in this Count. Signify is thus liable to Stingray in an amount that adequately compensates Stingray for Signify’s infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

#### **COUNT IV**

(INFRINGEMENT OF U.S. PATENT NO. 7,616,961)

86. Plaintiff incorporates paragraphs 1 through 85 herein by reference.

87. Plaintiff is the assignee of the ’961 patent, entitled “Allocating channels in a mobile ad hoc network,” with ownership of all substantial rights in the ’961 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

88. The '961 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '961 patent issued from U.S. Patent Application No. 10/134,862.

89. Signify has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '961 patent in this judicial district and elsewhere in Texas and the United States.

90. Upon information and belief, Signify designs, develops, manufactures, assembles, and markets wireless lighting devices configured to utilize ZigBee protocols such as the Accused Products (*see How Philips Hue Works*, PHILIPS HUE, *supra*), including via Signify's subsidiaries, such as Signify NA, partners, distributors, retails, customers, and consumers.

91. Signify directly infringes the '961 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing the Accused Products, their components, and/or products containing the same that incorporate the fundamental technologies covered by the '961 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, upon information and belief, Signify sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '961 patent. *See, e.g., Lake Cherokee Hard Drive Techs., L.L.C. v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013) (denying summary judgment and allowing presentation to jury as to “whether accused products manufactured and delivered abroad but imported into the United States market by downstream customers ...

constitute an infringing sale under § 271(a)").

92. Furthermore, Defendant Signify directly infringes the '961 patent through its direct involvement in the activities of its subsidiaries, including Signify NA, including by selling and offering for sale the Accused Products directly to Signify NA and importing the Accused Products into the United States for Signify NA. Upon information and belief, Signify NA conducts activities that constitutes direct infringement of the '961 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. Signify is vicariously liable for this infringing conduct of Signify NA (under both the alter ego and agency theories) because, as an example and on information and belief, Signify and Signify NA are essentially the same company, and Signify has the right and ability to control Signify NA's infringing acts and receives a direct financial benefit from Signify's infringement.

93. For example, Signify infringes claim 24 of the '961 patent via the Accused Products such as Philips Hue Bridge, Philips Hue lighting (including bulbs, lightstrips, recessed lights, ceiling lights, spot lights, path lights, and pendant lights), Philips Interact Pro Gateway, Philips CoreLine Downlight, Philips CoreLine Panel, Philips CoreLine Recessed, Philips CoreLine SlimDownlight, Philips CoreLine Surface-mounted, Philips CoreLine Waterproof, Philips MasterConnect LEDtub EM/Mains T8, Philips OCC Sensor IA CM IP42 WH, and Philips UID8450/10 ZGP Switch Dim 2B, which utilize ZigBee protocols.

94. The Accused Products implement the "method for dynamic channel allocation in a mobile ad hoc network comprising a plurality of wireless mobile nodes and a plurality of wireless communication links connecting the plurality of wireless mobile nodes together over a plurality of separate channels at different frequencies" of claim 1. Each of the Accused Products utilizes ZigBee protocols. ZigBee protocols are based on the IEEE 802.15.4 standard and involve



communication between two or more devices on a wireless channel. *See* THE ZIGBEE ALLIANCE, *supra*.

95. The Accused Products, at each node, monitor link performance on a first channel, link performance being based upon at least one quality of service (QoS) threshold. For example, by utilizing Zigbee protocols, each of the Accused Products is configured to monitor the performance of a channel in use based on its energy measurement (i.e., a QoS threshold).

96. The Accused Products, at each node, scout one or more other available separate channels at different frequencies when the monitored link performance on the first channel falls below the QoS threshold by at least switching to a second separate channel at a different frequency, broadcasting a channel activity query to determine link performance for the second separate channel, and processing replies to the channel activity query to determine the link performance for the second separate channel. For example, by utilizing ZigBee protocols, each of the Accused Products can become the Network Channel Manager within its network, which enables it to receive (i.e., scout) network interference reports and change the channel (i.e., switch) when interference is detected (i.e., falling below the QoS threshold). The same command can scan and produce an interference report (i.e., broadcast channel activity and determine link performance) for the newly-switched channel.

97. The Accused Products, at each node, update respective channel activity for the first and second separate channels at different frequencies based upon the processed replies. For example, by utilizing ZigBee protocols, the network manager of a local node like the Accused Products updates channel activity by discontinuing transmission on one channel and switching to a new channel.

98. The technology discussion above and the exemplary Accused Products provide

context for Plaintiff's infringement allegations.

99. At a minimum, Signify has known of the '961 patent at least as early as the filing date of this complaint. In addition, Signify has known about the '961 patent since at least March 12, 2018, when Signify (under its previous name as Philips Lighting) received a letter regarding infringement of the patent portfolio, including the '961 patent, related to wireless communication network products, which specifically referenced the infringing use of ZigBee standards and included a list of Signify's infringing products.

100. Upon information and belief, since at least the above-mentioned date when Signify was on notice of its infringement, Signify has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '961 patent to directly infringe one or more claims of the '961 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, Signify does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '961 patent. Upon information and belief, Signify intends to cause, and has taken affirmative steps to induce, infringement by distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing ZigBee protocol features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to purchasers in the United States. *See, e.g., Smart mood*

*lighting*, PHILIPS HUE, *supra* (“Control up to 10 lights in a single room with a Bluetooth-enabled LED bulb and the Hue Bluetooth app”).

101. Upon information and belief, despite having knowledge of the '961 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '961 patent, Signify has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Signify's infringing activities relative to the '961 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

102. Stingray has been damaged as a result of Signify's infringing conduct described in this Count. Signify is thus liable to Stingray in an amount that adequately compensates Stingray for Signify's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

### **CONCLUSION**

103. Plaintiff is entitled to recover from Defendants the damages sustained by Plaintiff as a result of Defendants' wrongful acts in an amount subject to proof at trial, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court.

104. Plaintiff has incurred and will incur attorneys' fees, costs, and expenses in the prosecution of this action. The circumstances of this dispute may give rise to an exceptional case within the meaning of 35 U.S.C. § 285, and Plaintiff is entitled to recover its reasonable and necessary attorneys' fees, costs, and expenses.

**JURY DEMAND**

105. Plaintiff hereby requests a trial by jury pursuant to Rule 38 of the Federal Rules of Civil Procedure.

**PRAYER FOR RELIEF**

106. Plaintiff requests that the Court find in its favor and against Defendants, and that the Court grant Plaintiff the following relief:

1. A judgment that Defendants have infringed the Asserted Patents as alleged herein, directly and/or indirectly by way of inducing infringement of such patents;
2. A judgment for an accounting of damages sustained by Plaintiff as a result of the acts of infringement by Defendants;
3. A judgment and order requiring Defendants to pay Plaintiff damages under 35 U.S.C. § 284, including up to treble damages as provided by 35 U.S.C. § 284, and any royalties determined to be appropriate;
4. A judgment and order requiring Defendants to pay Plaintiff pre-judgment and post-judgment interest on the damages awarded;
5. A judgment and order finding this to be an exceptional case and requiring Defendants to pay the costs of this action (including all disbursements) and attorneys' fees as provided by 35 U.S.C. § 285; and
6. Such other and further relief as the Court deems just and equitable.

Dated: February 8, 2021

Respectfully submitted,

/s Jeffrey R. Bragalone by permission  
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